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ABSTRACT

This second grade teaching unit centers on endangered animal species around the world. Questions addressed are: What is an endangered species? Why do animals become extinct? How do I feel about the problem? and What can I do? Students study the definition of endangered species and investigate whether it is a natural process. They explore topics such as the disappearance of homes, polluted habitats, over-hunting, and the sale or exploitation of animals. Unit skill goals focus on using the library to study a specific animal, and learning to use a map as a reference to locate endangered species. Attitude goals deal with helping students: (1) realize how personal attitudes and values have an impact upon potential solutions to the problem, and (2) learn that the students are not powerless and can make a difference. Behavioral objectives are keyed to unit goals and activities. Activities include classroom games, filmstrips, displays, stories, construction projects, library research, map work, role playing, painting, outdoor games, discussions, attitude surveys, field trips, civic writing, and symbolic activities. The unit evaluation is based on observations, students' work products, and participation. A 12-item annotated bibliography is attached. (JDH)

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ENDANGERED ANIMALS

(Second Grade)

SP 017 431

Marcia Popp

April 23, 1986

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CONTENT OUTLINE

I. What is an endangered species?

- A. Definition
- B. Is it a natural process

II. Why do animals become extinct?

- A. Disappearing homes
- B. Polluted habitats
- C. Over hunting
- D. Animals for sale / exploitation

III. Studying endangered species

- A. What do we know about them ?(dealing with concepts)
- B. Where do they live

IV. How do you feel about it?

- A. Which animals should we save
- B. How would our lives be changed with the loss of these animals? (balance of nature)

V. What can I do?

- A. Understand problems of conservation of wildlife
- B. Make others more aware
- C. Realize that you can make a difference

GOALS

Knowledge

To help students:

1) gain an understanding of the factors that cause species to become extinct.

2) identify animals that are in danger of becoming extinct.

3) understand what it means to be endangered as opposed to extinct.

4) understand the balance of nature and where we fit in.

Skill

To help students:

1) learn to use the library to study a specific animal - to gain knowledge from resources.

2) learn to use a map as a reference to locate endangered species.

Attitude

To help students:

1) realize how personal attitudes and values have an impact upon potential solutions to the problem.

2) realize that they are not powerless and that they can make a difference.

OBJECTIVES

K3 1) The students will demonstrate their knowledge of the difference between endangered and extinct animals by giving examples of each.

K1 2) The students will be able to hypothesis about possible reasons for endagerment and extinction.

K1 3) By the end of the unit, the students will be able to name at least 4 negative affects that man has had on endangered species, and also 4 positive affects.

K2 4) The students will work in pairs to research a specified animal and will give a short presentation to the class.

K4, S1 5) The students will begin to gain an understanding of the balance of nature and where they fit in by making a chart showing all of the interrelationships of our environment that we encounter on our everyday lives.

K4 6) After playing a food chain game, the students will be able to describe some food chains that they are a part of.

K4 7) Students will be able to explain the relationship of predator and prey by answering oral questions presented by the teacher after playing a simulation game.

K1, K4 8) The students will be able to predict what would happen to the food chain and the balance of nature if one of the components of the food chain became extinct.

K1, K4 9) The students will be able to describe how camouphlage is helpful to animals and will be able to name specific examples.

K1, K4 10) Students will be able to design an animal to live in a made up environment using his knowledge of adaption and camouphlage.

S1 11) After a brief introduction to the library by the librarian, the students will be able to locate the main features of the library including the dictionary, encyclopedias, card catalog, magazines and newspapers, and with some help, specific books about animals.

S2 12) The students will be able to name and locate all 7 continents on the map and then will be able to place their animal in the correct continent.

K1, A2 13) After learning about the present situation of several endangered species, the students will be able to propose at least 5 possible remedies to secure the future of these animals.

A1 14) The students will be able to clarify their feelings and opinions by filling out a survey containing statements about the environment both before and after the lesson and will compare the two to see if their feelings have changed as a result of being more informed.

A1 15) The students will be able to rank their priorities and use valueing processes through a number of different activities without an emphasis on right or wrong.

A1 16) The students will be able to examine the results of their values clarification activities and discuss with the class how their attitudes effect the lives of animals and the environment around them.

A1, A2 17) Students will develop a sense of personal involvement and empathy toward animals and the environment by examining things from different points of view.

A1, A2 18) The students will make a personal commitment to improving upon the present conditions of the environment with special emphasis on helping endangered species by following the Golden Rules of Conservation.

7 19) Students will demonstrate an understanding and concern of the problems of conservation by informing friends and other people of the community through many differet modes.

INITIATING ACTIVITIES

OB:1,2 (1) Concentration: draw a 4x4 grid on the chalkboard, labeling one axis with ABCD and the other with 1234. Split the class into 2 teams. After making a quick check to see if students understand the coordinate system, the game will begin. (It may help them to understand the grid system if you relate it to the game, Battleship). The teacher has a pre-prepared grid system with the words that go in each square with her and will write the word in the box on the board as the students call for them. If they match leave them, if not, erase them. The game continues until all the words have been revealed. At this point, the teams will huddle together to organize and write down an appropriate sentence using all the words from the boxes. The points awarded can be manipulated by the teacher to try to limit too much competition. Next, discuss the sentence and its meaning. (Ex. Many animals today are in danger of becoming extinct.) Try to find out how much the students already know and how much interest there is in the topic. Possible questions:

- -What does extinct mean?
- -What's the difference between endangered and extinct?
- -What animals do you know about that are endangered or extinct?
- -Why do you think these animals became extinct and why are so many now in danger?

Explain that endangered species is going to be the next topic of study.

(2) To introduce the students to endangered species, show the filmstrip (with cassette) Our Vanishing Wildlife. It contains six different topics: Our wild friends - it's not too late to care, The passenger pigeon - an act of man, The southern bald eagle - an American symbol may perish, The eastern timberwolf - a cry of injustice, The American alligator - a reptile in trouble, and The whale - hunted giants of the sea. Discuss what it means to be endangered and have students hypothesize about why these animals are endangered.

OB: 2,3

(3) Set up a display of dinosaurs; pictures, charts, models, books, etc. Let students browse through the materials and then start a discussion about dinosaurs. Ask children what they know about dinosaurs. Ask if anyone's been to the museum and seen a model of a dinosaur. (let them tell stories) Then ask if anyone knows why they became extinct. Let the students hypothesis. Also have done some research on your own to provide theories to the kids. Explain that there are no more of these animals alive - EXTICT Then show students posters of endangered animals and explain that these animals may end up like the dinosaurs if something isn't done to help them. Have students brainstorm what might be done, and then tell them that we will follow up on some of these ideas because endangered species is our next topic of study.

OB: 1

DEVELOPMENTAL ACTIVITIES

OB: 3,17 (1) Read the story, The Lorax, by Dr. Seuss to the class or even better, the movie. It's a story about the effects people can have on the environment and about how everything effects everything else (balance of nature). But it also shows how just one person can make a difference. It's great!

(2) Name game: After the students have studied different endangered
OB:4 species and have given their reports to the class on the animal that they chose to research, they can play a game where the name of an animal (an endangered species) is pinned or taped to the back of their shirts so they can't see it. The object of the game is to try to guess what they are. The way they do this is by asking yes/no questions to other players. The game ends when everyone figures out who they are.

(3) Camouphlage: Explain to the class that we're going outside
OB: 9 to do an experiment. There will be four different colored toothpicks:red, yellow, blue, and green, which will be thrown in the grass in a specified area. Ask the students to predict which color they think will be easiest and which one hardest to find. Record their "hypothesis" on the board and then go outside to "test" their predictions. (Split the class into four groups before going outside) Once outside, have the students get in their groups and tell each which color toothpicks they will be looking for. While the students have their backs turned, the teacher throws all of the toothpicks into the grass. Have each group go out one at a time to look for their toothpicks. Time how long it takes and record the results. Once all the data has been collected, go back inside and make a bar graph to display the results and to see if

the hypothesis was correct. Ask why they chose the order they did. Explain that this experiment shows the importance of camouphlage and ask if anyone knows what this word means. Give them some examples and then ask if they can give any.

Other questions to ask:

-What do you think would happen if we did this experiment on a red shag carpet?

-Why do you think camouphlage is important?

-What do you think would happen if the place where the animal lived had suddenly been changed? For example - What if the trees had been cut down in the part of the forest where the deer live?

OB.5 (4) <u>What is an environment</u>?: Split class into 5 groups, each with a large piece of poster paper and markers. Ask if anyone knows what an environment is; (anything that influences or is influenced by something else) - Are you an environment? Let's find out. Have students write "ME" in the middle of the paper, then ask students to brainstorm everyday things around them that they need to live or just things they encounter. They write these words in a circle around the word "ME" and then draw lines to what things affect what. They will come to the realization that everything is affected by everything else. Ask if they can think of anything that is not part of an environment.

OB.17,18 (5) Identify existing wildlife on the school grounds and prepare a plan to improve habitat in an area suitable for maintainance and observation, in order to attract and preserve wildlife.

(6) To encourage discretion in the use of natural materials and to promote cooperation and sharing, - make a variety of rock animals by collecting and assembling different shaped rocks. You can also use shells or pinecones or a combination. Emphasize how important it is to collect materials carefully so that no animal's

homes are destroyed.

OB: 1,4,11 (7) Have students go to the library to find information about an animal that they want to learn more about (an endangered species). But first help them to become more familiar with the library by:

- having the librarian give the students a tour and point out specific areas of reference materials and other important features of the library.

- going on a scavenger hunt of the library to help them locate such things as the card catalog, encyclopedias, dictionary, magazines and newspapers, atlas, and especially specific books about animals. Explain that the library is not the only source of reference and have the students brainstorm others. Follow up on these ideas to get more information for the students about their animals. Once enough material has been collected, let students work with a partner to "research" an endangered species and prepare a brief report to share with the class. Such things as: name, location, how many left, why are they endangered). Also see if they can find a picture.

OB: 12 (8) After the students have given their reports they may want to locate their animals on a world map, but first help students become aquainted with the 7 continents of the world by drawing a large map of the continents up on the bulletin board. Give the students some atlases to look at and have them help figure out which continent is which. After all have been labeled, point out areas of reference for them. (Ex. the U.S., where Santa Claus lives, where kangaroos live, Russia, Libya, etc. - ask the students for ideas). Then have each pair of students draw a small picture of their animal or cut one out from a magazine and pin it on the appropriate place on the map.

OB:3,17 (9) Role play animals in a special habitat:

a) At a field (or other habitat) sit in a circle and have students each select an animal that might live or visit there.

b) Students think about and then pretend to be that animal. Ask questions such as what it would see, how it looks for food, how it listens for the enemy, how it gets around, who might its predators be, and how are you influenced by humans.

c) Come back in a circle and discuss what each thinks life is like for their animal.

OB:3,10 (10) Invent an animal that can adapt to particular environments, seasons or conditions. The students create both the environment and the animal and draw a picture of the animal in its environment. Tell them to keep in mind the influences of man and what the animals might have to do to adapt.

OB:7 (11) Predators and Prey: The object of this game is to find your secret partner (mate) before a predator finds you.
Each student will need a brown paper bag as a mask, and either a noise maker or a predator sign. Display the noise makers and predator signs. Discuss what is meant by predator (animals that eat other living organisms) and prey (food eaten by predator). Tell the students that they will try to find their partners and avoid being captured by the predator. Have everyone put on a mask and, in turn, select a string from the box. No one is to know what each other has. The students hold hands and form a line (masks still on). The leader starts a "snake walk" and keeps dropping off the first person in line as the walk proceeds. This scatters the players. Give the signal to begin. The students try to find the animal that is making the same noise as he is. If he is caught by the predator he must go to the specified captured zone. If partners find each other before the predator

does, they must stay together and continue to avoid the predator until the hame is over. The game is over when the leader calls time (about 5 min. works well at first). Each game represents a lifetime for the animals.

- You can only make noise when you're stationary.

Questions to ask at the end:

1) Which signals worked best in attracting and finding partners? Why?

2) How did you successfully avoid a predator?

3) Besides attracting a partner what else might animals be communicating?

(12) Food Chain Game: Ask the students if they know what mice eat and what eats mice. "Mice eat seeds and snakes eat mice," they may respond. Diagram the relationship on the board and introduce it as a food chain.

08:6,8

seeds -----> mice -----> snakes

Ask the kids if they can think of other food chains, including a food chain that contains man.

For the game you will need: sashes of three different colors, have enough for 3/4 of the class to be grasshoppers, 1/3 to be frogs, and 1/3 to be hawks. The unbalanced ratio provides the opportunity to change the population numbers in the game. Prepare "stomach" bags. Place a strip of masking tape across the sandwhich bag so the bottom edge of the tape is about 4cm. from the bottom of the bag. To begin the game, spread popcorn over the area. Tell the class that you are distributing plants that grasshoppers eat. Hand out a plastic bag and a grasshopper sash to 1/3 of the class. Tell the kids to put their "food" in their "stomachs" when the game starts. Hand out a bag and a frog sash to a second 1/3 of

the class, and hawk sashes to the last 1/3. When the game starts, frogs will try to capture (tag) hoppers, and the hawks will pursue frogs. When a frog captures a hopper, the hopper's stomach contents are transferred to the stomach of the frog. When the hawk captures a frog, he takes the frog's whole stomach. Hawks do not eat hoppers in this game. State the challange. Set the timer for 5 min. and yell go! The first game usually lasts only a few seconds with one of two things happening. Hoppers are gobbled up before they have a chance to forage, or the frogs are gobbled up and hoppers continue to eat popcorn and get fat.

Analysis: How many animals survive? For a hopper to survive, popcorn must fill the stomach bag to the bottom of the tape. For a frog to survive, popcorn must fill the stomach bag to the top of the tape. Hawks must have the equivalent of one frog with sufficient food to survive. If at least one of each animal survives you have an ongoing food chain. Replay the game;

Possible rule changes:

a) change the number of hoppers and/or frogs and/or hawks.

b) Let each hopper come back as another once after being captured and transfering stomach contents.

c) provide a "safety zone" for frogs and/or hoppers where they can be safe.

d) Timed releases. Let hoppers go first to forage unmolested. One minute later release the frogs, and later the hawks.

e) Spread out more popcorn.

After each game analyse the results. Encourage students to compare game results after each rule change, and to comment on how the game "balance" compares with balance in the real world. "If there were no frogs, what would happen to the plant popu-

lation? The hopper population? The hawk population?

Do hawks need plants to survive?

Can you describe some food chains that you are a part of?

Are there any plants or animals that are not part of any food chains?

OB: 3,15 16,17 (13) To begin a discussion on hunting:

Set up a values continuum, or choice within a range of feeling regarding the question, "How do you feel about hunting animals"? indicate position where you place yourself on a line ranging from "It's okay to wipe animals out" to "Let us make hunting illegal").

OB: 14,15, 16 (14) Use an environmental attitudes survey to help you and the student clarify feelings and values. Set up a list of 25 or so statements concerning the world in which we live and in front of each statement circle either A-agree U-undecided or D-disagree.

Some example statements:

- A person living in the city does not have to worry about conservation problems.
- There is little I can do about conservation. I am only one person.
- We may be in danger of extinction because of what we are doing to our environment.
- We do not need laws to help take care of the environment. We can do it on our own.
- We do not need to think of the future to plan today's actions.

OB: 18,19 (15) Ask students to think of all the people who are trying to protect the environment and endangered species. Start with their school. Have them thank them in person or in letters for their conservation attitudes and efforts to improve conditions.

OB: 3,17 (16) Consider population problems in a classroom exercise. For a brief time, several classes go into one classroom and share space and equipment. Or one class go into a limited space inside or outside. What are their feelings about being crowded?

What effect would shoving animals into smaller and smaller places have upon the animals? Explain that this is what is happening. Animals are getting pushed into smaller spaces because man's population is increasing. Can we find a balance? What can we do about it? Have children write down at least three things we could do.

OB: 1, 3, 19 (17) Exploitation of animals: Read to the students from the book, Wildlife Alert! The Struggle to Survive, by National Geographic. It has an excellant section on the exploitation of animals and rare animal trade. It lists and shows pictures of some things that animals are killed for and explains poaching and gives examples of animals that are endangered because of poaching.
Have the students make posters with slogans to protest the exploitation of animals.

OB: 17 (18) Adaption: Adaption is important to all animal life. Students can develop an appreciation for how they differ from lower animals in an ability to grasp objects by taping their thumbs to their palms for several hours. Pass things around the room and have students try to eat. See how difficult simple tasks become. Make a list of things thumbs enable people to do that lower animals are deprived of doing. (Other adaption activity is Camouphlage).

OB: 3, 18, 19 (19) Read the poems, Everywhere is Somewhere, and The Dirty Water Blues to the class. Ask the students to think of ways we could clean up the water and help conserve our clean water. Go on a field trip. Find some water near you. If you live in the country it might be a mountain brook or a creek. If you live in the suburbs, it might be a marsh or a ditch by the roadside. If you live in the city, it might be a river or a lake in a park. Take a walk along that water. As you walk, write down or draw all the pollution that you can see and where you found it. When you get

back to the classroom, make a map of the water and the polluted places. This may help track down possible sources to the problem. Whatever the source is, if you can find it and report it to the proper agency, you will have begun to clean up the water which in turn will help animals as well as us.

SB: 3 (20) Human Impact on an Ecosystem: Depending on where you live, choose either a rural, suburban, or city area ecosystem and have the students take a walk and list all the signs of human activity that have changed the land, for example, a fence, a road, mowed fields, trash, buildings, telephone poles. Discuss the impact of these items. Where was the fence placed on the landscape? If it is around a field, did it change the field community? How? Small animals might not be able to get through the fence and the make-up of the field community may change. Do not assume that human impact is bad. List ways man has improved this ecosystem.

SB: 15, 16, 18 (21) An auction: If you had so much money, how would you spend it? Give the students play money and let them bid on 20 different items. Each will be sold to the highest bidder.

Some possible items might include:

- a long life free of illness
- television
- a world without air or water pollution
- a chance to preserve endangered species
- lots of friends

After the bidding is complete, see if there is consensus about some of the most important items or whether priorities are very different.

Useful discussions can emerge concerning how values are analyzed and the difficulty in assigning relative importance to them. Accent values clarification and tolerance of differences.

CLOSING ACTIVITIES

OB: 3, 13, 17 (1) To increase student awareness of the interdependence among all living things and encourage student responsibility for protecting the environment that supports life, take the students on a field trip to a wildlife refuge.

Integrate concepts that have been taught throughout the unit: Ask the children to observe and record (either in writing or pictures or both) such things as; What kinds of plants and animals live in this community? How do they relate to each other and to the environment? What things influence their survival? If larger animals (including humans) are not present, look for evidence of their activities or speculate about what animals could survive under the prevailing conditions. (Bring hand lenses along). After returning to the classroom, you could put all their pictures together to create a mural.

OB: 14, 15, 16 (2) Redo activity #14. Answer the same statements again to see if the students values have changed due to their increased information and knowledge.

OB: 3, 13, 18, 19 (3) Have the students write a letter to their Senator or State Representative expressing their concern about endangered species. Be sure not to just mention that their is a problem, but include positive actions you would like to see them take.

Examples and addresses can be found in the book, Save the Earth!, by Betty Miles.

QD: 3,19,4) Work up a plan of action:

18 With background information on the problem and research on possible alternative solutions, communicate your findings to others and/or become an advocate for a particular plan of action.

Some ideas:

- Communicate the facts to others by speaking at meetings, writing letters to the newspaper, and contacting officials.
- Provide materials for display or for studies to libraries, and other groups willing to encourage public education.
- Ask media sources (television, radio, newspapers) to provide more coverage of environmental conditions in general and your issue in particular. If they are already performing this kind of public service, let them know you appreciate it.
- Look for individuals and groups already concerned with your issue.
- Participate in the work of a committee concerned with the local problem, or organize a committee if none exists. Start a club.

UNIT EVALUATION CHECKLIST

Report to class on endangered species:

OB: 1,2,4

gives location	3	____
description/picture	3	____
tells how many left	3	____
overall presentation	5	____

Map:

OB: 12

can name the 7 continents and locate them on map	5	____
can locate their animal on the continents map	5	____

Library:

OB: 11

able to locate dictionary, encyclopedias, card catalog, and magazines	5	____

Field trip:

OB: 3,5,6,7,8, 9,13,17

observations are thorough and descriptive	5	____
observations show an understanding of learned concepts	10	____

Letter to governmental official:

OB: 13,18,19

is written in letter form	3	____
expresses concern and knowledge of problem	10	____

Participation	20	____

total 77 pts.

SCALE

70-77	A
62-69	B
55-61	C
48-54	D
47-	F

BIBLIOGRAPHY

Green, Ivah. Wildlife in Danger. Eau Claire, Wisconsin: 1960. (A great resource boo for the kids. Describes about 28 endangered animals w/pictures and then gives a hopeful outlook at the end.)

Miles, Betty. Save the Earth! New York: Alfred A. Knopf Inc., 1974. (Tells how to take actbon against all kinds of environmental problems, mostly pollution. Gives names of organizations that can help you find out about environmental laws and agencies in your town or your state.)

Outdoor Biology Instructional Strategies (OBIS). Lawrence Hall of Science: University of California, Berkeley, California. (These are great activities that really get the students involved.)

Robinson, Barbara and Evelyn Wolfson. Environmental Education - A Manual for Elementary Educators. Columbia University: Teachers College, 1982. (An excellent resource book for the teacher - full of great activities on a variety of environmental topics.)

Russell, Solveig. About Saving Wildlife for Tomorrow. Chicago, Illinois: Melmont Publishers, Inc., 1960.

Soltow, Willow. "Before It's Too Late: Teaching about endangered animals," Humane Education, June, 1984.
(I found this using ERIC. It's supposedly a whole unit, but it gives only a couple of activity ideas; however it is helpful in producing a content outline.)

Stone, Lynn M. Endangered Animals, Chicago: Children's Press, 1984.
(This, I think, would've been a great reference book except someone stole it from the library. It supposedly discussed various endangered animal species in the world, why and how they become endangered, and what you can do about it.)

Stuart, Gene S. Wildlife Alert: The struggle to survive. National Geographic Society, 1980.
(A great book - has color pictures and describes the problems of endangered species and why they're becoming extinct.)

Wood, Frances and Dorothy. Animals in Danger. New York: Dodd, Mead and Company, 1968.
(Tells the story of many endangered species as well as reasons for their endangerment and what can be done about it.)

Endangered animal pictures: The Instructor Publications, Inc. Daneville, New York.
(8 giant full color poster with teaching suggestions. The pictures are great - big and colorful - but the activities are not that great. They deal specifically with the animal pictured.)

A Learning Kit: How Animals Hide, National Geographic Society, Washington, D.C. 1978.
(Contains 3 large color pictures demonstrating camouphlage, a cassette tape, filmstrip, and some fun duplicating materials.)

Filmstrip: Our Vanishing Wildlife. Pomfret Center, Conn., Pomfret Press, 1981.
(Contains 6 filmstrips w/cassettes.)

* On the back cover of National Geographic Magazines, there are pictures of endangered species, showing their location on a map, how many there are left, and their scientific name.

* The Lorax by Dr. Seuss